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SMITH, Doris G.
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Thesis

THE EFFECT OF SPECIFIC TRAINING IN AUDITORY PERCEPTION ON THE SPELLING OF TWENTY-THREE SEVENTH-GRADE CASES OF SPELLING DISABILITY

Submitted by

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(B.S., Boston University
School of Education, 1943)

In partial fulfillment of requirements for
the degree of Master in Education
1949

Gift of
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School of Education
August, 1949
31322

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ACKNOWLEDGMENTS

The author wishes to express her appreciation and gratitude to the many individuals who have helped her complete this study. She is especially indebted to Dr. Mary Agnella Gunn for her careful guidance and advice, to Mr. James F. Baker, without whose assistance the statistical analysis could not have been completed, and to Miss Mary M. Dolan, Principal of the Plymouth Junior High School, whose interest and co-operation made possible the conduct of the experiment.

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CHAPTER I

THE PROBLEM

Statement of the problem.-- In September, 1946, among a class of about two hundred seventh-grade pupils of the Junior High School in Plymouth, Massachusetts, twenty-three were found to be a year or more retarded in spelling. One forty-five minute period a week of specific drill in auditory perception was given to this group for a period of twenty weeks in an attempt to help them overcome this spelling disability.

Plan of investigation.-- For the purposes of this experiment an experimental and a control group were selected from pupils in the Plymouth Junior High School.1/ The reading and spelling level and the intelligence quotient of each child in each group was determined by testing, and the two groups were statistically compared.2/ The experimental group was given a series of special drills in auditory discrimination.3/ At the end of the school year the gain in spelling made by the experimental group was statistically compared to that of the control group.

1/ Chapter III, Description of the Experiment.
2/ Chapter IV, Analysis of Data.
3/ Appendix II, Lesson Plans Used in This Experiment.

Justification of the problem.-- It is a generally-accepted fact that some secondary-school children of normal and even superior intelligence are backward in reading and spelling. Durrell says,[1]

> "One study of 1130 children who were given individual intelligence tests and three reading tests at the end of the sixth year in school showed that 445 children, or 39 per cent, were a year of more below grade in reading. Of these poor readers, 327, or 73 per cent, had I.Q.'s below 90, while 118, or 27 per cent were average or superior in intelligence. Of each four children falling behind in reading, one is likely to be of normal or superior mentality."

This paper is concerned, primarily, with disability in spelling, but so closely allied to this is disability in reading that the two are often considered together. Investigations have shown that, although many good readers are poor spellers, poor readers are almost invariably poor spellers. Concerning this, Gates[2] tells us,

> "That the abilities to perceive certain essential details of words yield higher correlations with spelling than with reading, leads to these tentative hypotheses. During reading, the words may be perceived in a way which suffices to call up the meaning but may or may not be perceived with sufficient characteristic detail to reinstate, even partially, the spelling. That is, it is quite possible that when words are perceived in a certain favorable way during ordinary reading, the bonds involved in spelling the word may be strengthened

1/ Donald D. Durrell, Basic Reading Abilities, Yonkers-on-Hudson, New York: World Book Company, 1940, p.278.

2/ Arthur I. Gates, Psychology of Reading and Spelling, Contributions to Education, No. 129, New York: Teachers College, Columbia University, 1922, p.36.

to some degree. Certain subjects fail to obtain from words an impression that is adequate for reading, some may secure impressions adequate for reading but not adequate for spelling, others may become not only good readers but also good spellers through practice obtained by seeing words in a particularly favorable way."

Later in the same publication Gates1/ states further,

"Backwardness in reading has been, among our subjects, almost invariably accompanied by backwardness in spelling, although backwardness in spelling is not always evidence of backwardness in reading. When the perceptual abilities are so inappropriate as to make reading difficult, other things being normal, the effect on spelling is very marked. When the perceptual abilities are satisfactory for reading they may still be insufficiently precise for perceptible assistance in spelling. Finally, cases of backwardness in spelling are found where the perceptual reactions to words seem better than average."

Investigators disagree somewhat as to the relative importance of auditory, visual and motor perception in learning to spell. Most of them seem to agree that all three are of value and that the effectiveness of any method may differ with the individual pupil. Since auditory perception would seem to be at least one of the fundamental skills needed for success in spelling this experiment was attempted.

1/ Ibid., p.69.

CHAPTER II

REVIEW OF PREVIOUS RESEARCH

Some problems which face the teacher of spelling.--Dora Smith[1] reporting on a survey of secondary schools in New York State, reveals the following disquieting information,

> "Dr. Gray and others have agreed, on the basis of research, that reading ability of the level of the eighth year, tenth month, is necessary for meeting successfully the demands of the secondary school course. The same level of performance is imperative for any sort of critical reading of current newspapers and magazines."....
>
> "In large numbers of schools two-fifths of the ninth grade pupils were so handicapped; [that is, they were not equal to this necessary performance in reading] "one-third of the tenth grade pupils; one-fifth of the eleventh grade pupils; and from one-tenth to one-third of the seniors. It is a matter for serious concern that in certain of the smaller schools in towns of ten thousand people or fewer, one senior in three is leaving high school incapable of reading at the level of the eighth year, tenth month. From the ninth grade on, also, elimination sets in, and evidence supports the assumption that those who leave first will be the least capable in the group. From the point of view of the intelligent exercise of the duties of citizenship the situation presents a major challenge to the schools."

Since investigation has shown that poor reading ability almost invariably is accompanied by poor spelling

1/ Dora V. Smith, Evaluating Instruction in Secondary School English, English Monograph, No. 11, 211 West 68th Street, Chicago: The National Council of Teachers of English, 1941, pp. 32-33.

ability, and that many boys and girls who have no difficulty with reading are poor spellers, it would seem a logical assumption that the over-all picture in spelling shows more retardation than that in reading.

The opinion is frequently voiced, however, that poor as much of the spelling is, it is actually better than it was a number of years ago. Sifferd 1/ of the University of Illinois has recently completed a survey to discover whether or not this is true. Taking as a basis of comparison the Buckingham Extension of the Ayres Spelling Scale, which was given about thirty years ago to some tens of thousands of children from grades two through nine, he gave the same test to school children in western Illinois. The Buckingham average of thirty years ago was the higher of the two.

The preceding statements are reports of careful research. They bring to mind the following important questions:

1. What should the teacher of spelling aim to accomplish?

2. How can he best carry out these aims?

1/ Calvin S. Sifferd, "A Survey of Spelling Ability", The Elementary School Journal, University of Chicago Press, (February, 1947), pp. 340-346.

3. What can he do to prevent the development of cases of spelling disability?

4. How can he best help children overcome such disability?

As leaders in the field of education are fully aware of the problems confronting the teacher of spelling, much scientific investigation has been carried out in attempting to discover the most efficient and economical methods of helping children to acquire this skill. It is well, however, to heed Thompson's 1/ warning, "The habit of correctly spelling what one writes in and out of school is not the same thing as the ability to spell words correctly when they are dictated in the spelling period or at some later time."

Thorndike 2/ suggests a broader aim for further spelling and reading research when he writes,

> "A method of teaching spelling which, other things being equal, improved ability to perceive words during reading in a way beneficial to later spelling would be highly advantageous. Indeed, its influence in this direction might far outweigh its influence in the day-by-day learning of the four to six hundred words assigned for study each year."

1/ Robert S. Thompson, The Effectiveness of Modern Spelling Instruction, New York City: Bureau of Publications, Teachers College, Columbia University, 1930, p. 20.

2/ E.L. Thorndike, "The Needs of Fundamental Analysis of Methods of Teaching", The Elementary School Journal, (November, 1929) Vol. 30, p. 191.

The importance of visual, auditory and motor perception in learning to spell a word correctly.-- One point upon which investigators of spelling methods seem to agree is that the correct spelling of a word can best be learned and retained if it is presented and practiced through the three senses of seeing, hearing and feeling. Regarding this point Fernald 1/ says, "The first step in learning to spell is the development of a distinct perception of the word. By perception we mean the consciousness of an object that is stimulating one or more of the senses, as vision, hearing or touch."

Foran 2/ states,

> "Because of the nature of the learning process and the normal use made of skill in spelling, it is imperative that the words to be learned be written, pronounced, spelled silently, spelled aloud, and so experienced in a variety of ways that the impression created is not dependent on any single form of association."

According to Gates, 3/ "For effective spelling the bonds between the perception (visual or auditory) of the word and the motor reactions of producing the letters in serial order must in the first place be established by specific practice."

1/ Grace M. Fernald, Remedial Techniques in Basic School Subjects, New York and London: McGraw Hill Book Company, Incorporated, 1943, p. 181.

2/ T.G.Foran, "Basic Psychology and Techniques in Spelling", Education, (February, 1937) Vol. 57, p. 365.

3/ Arthur I. Gates, Op. Cit., p. 71.

Winch 1/, reporting on an experiment conducted in a London school, arrives at a similar conclusion,

> "We have proved for boys of Standard II in a school poorly situated down East in London that, when they are set to acquire the correct spelling of words, they learn them more readily by a method in which their attention is directed by the teacher letter by letter, and when there are marked motor-articulatory and auditory factors as well as visual ones, than they do by a method in which they learn visually and more or less silently by themselves. But both methods have been shown to be good."

The value of presenting spelling words in groups, pairs and columns for better results.--

Tidyman and Johnson 2/, reporting on an experiment in grouping, say,

> "Within the scope of the experiment grouping words of similar difficulty together in spelling is a significant factor, and grouping words for study secures approximately ten per cent better results than the study of words in a chance order."

Pearson 3/ discovered it is more efficient to teach homonyms in pairs than separately.

1/ W.H.Winch, "Experimental Researches on Learning to Spell", Journal of Educational Psychology, (November, 1913) Vol. 4, p. 536.

2/ W.F.Tidyman and Edith Johnson, "The Value of Grouping Words According to Similar Difficulty in Spelling", Journal of Educational Research, (November, 1924) Vol. 10, p.301.

3/ Henry Carr Pearson, "The Scientific Study of the Teaching of Spelling", Journal of Educational Psychology, (March, 1911) Vol. 2, pp. 241-252.

McKee 1/, investigating the relative values of teaching by column or context, reports,

> "As determined in this investigation, pupils who studied and were tested by the column form seemed to have acquired a greater amount of spelling ability than did the pupils who studied and were tested by the phrase form."

Helpful devices for reviewing words previously misspelled.-- According to Durrell 2/,

> "Intermediate grade and high school pupils should be encouraged to keep personal spelling lists of words misspelled in written composition and words avoided through fear of misspelling."

Somewhat similar is Gates' 3/ suggestion that each pupil have two envelopes, one marked "Words To Learn", and the other, "Words To Be Reviewed", writing each misspelled word on a card to be kept in the first envelope, to be transferred to the second when the word has been learned.

A direct method of teaching spelling as opposed to an indirect one.-- Some educators have suspected that much school time allocated to spelling has been wasted because children may learn to spell by an indirect method as efficiently as by a direct one. An indirect method

1/ Paul McKee, "Spelling by Column and Context", Journal of Educational Research (April, 1927) Vol. 15, p. 254.

2/ Donald D. Durrell, Op. Cit., p. 269.

3/ Arthur I. Gates, Op. Cit., pp. 78-79.

of teaching spelling provides no formal drill on spelling lists, as such, in the classroom program. Instead, the spelling of troublesome words is given attention as the occasion may arise in connection with composition, social studies and other subjects. It is possible that for the naturally good speller this method is more efficient than the other. However, several investigators report the superiority of a direct method of teaching spelling over an indirect one. Among these is Winch 1/ who says,

> "In eight different classes, ordinarily taught by eight different teachers, in two schools of different sex and social type, a 'direct' method of teaching spelling has proved superior to an 'indirect' one."

Emphasis on careful pronunciation, including syllabication, stressed by several leaders in the field of spelling research. --

McKee 2/ declares,

> "The first step in presenting the words of a lesson to pupils for the first time is a pronunciation exercise. There seems to be no question but that the ability to pronounce a word correctly is an important factor in learning to spell it.... It is important to emphasize the syllables when presenting a new word.... Have pupils look at words carefully while pronouncing to promote visual imagery."

1/ W.H. Winch, "Additional Researches on Learning to Spell", Journal of Educational Psychology, (February, 1916) Vol. 7, p. 109.

2/ Paul McKee, Language in the Elementary School -- Spelling, Composition and Writing, Boston, Massachusetts: Houghton Mifflin Company, 1934, p. 87.

Greene 1/, in a study concerning the value of syllabication, mentions experimental studies by Professor J. D. Heilman and Hattie Wolfe. Each reports in favor of the syllabized form of the word. In summing up Greene writes,

> "On the surface it appears that there is a certain superiority in favor of the syllabicate form of the word for earlier presentation, for the lower grades, and also in the case of delayed recall."

Several investigators are emphatic in stating, however, that the printed word should not be divided into syllables at its initial presentation.

Gillingham and Stillman 2/ add, "The teacher frequently needs to stress or even over-pronounce a particular syllable in order to make the child especially conscious of the sound."

Common practices that the conclusions of investigators in the field of spelling research suggest should be avoided.-- Along with suggestions telling how spelling should be taught are mentions of some common procedures that experimental studies have shown to have little value. So Durrell 3/ says,

1/ H. A. Greene, "Syllabication as a Factor in Learning to Spell", Journal of Educational Research, (October, 1923) Vol. 8, p. 219.

2/ Anna Gillingham and Bessie W. Stillman, Remedial Work for Reading, Spelling and Penmanship, New York City: Sackett and Wilhelms Lithographing Corporation, 1936, p. 54.

3/ Donald D. Durrell, Op. Cit., p. 268.

"The usual weekly assignment consists of twenty words in each intermediate grade, but the number of words to be learned each week depends upon the child's capacity to master spelling. It is preferable for a child to master ten words with security than to flounder in a longer lesson without success....

Words whose meanings are unknown to the child should not be included in the spelling lesson....

Teaching spelling through rules is of little value. Essentially, spelling is a non-thinking, automatic motor response to an ideational or visual stimulus."

McKee 1/ warns,

"Do not call attention to possible misspelling upon the initial presentation of a word....

Develop meanings of new words during initial presentation only where necessary....

It is important for each pupil to understand that until he can spell a word correctly on the first attempt without hesitation he does not sufficiently know the word....

A word should be called wrong if crossed out, erased, written over or omitted....

Suggested methods for teaching spelling successfully.--Gates 2/ and Horn and Ashbaugh 3/ emphasize the importance of teaching the child an effective method of learning to spell words independently. The methods suggested by these educators are very similar. Gates 4/

1/ Paul McKee, Op. Cit., pp. 87-95.

2/ Arthur I. Gates, Op. Cit., p. 90.

3/ Ernest Horn and E.J. Ashbaugh, Fundamentals of Spelling, Philadelphia: J.B. Lippincott and Company, 1928, pp.25-26.

4/ Arthur I. Gates, Loc. Cit.

gives the following four steps for learning to spell a word:

"1. Carefully pronounce the printed word by syllables or in units convenient for pronunciation.

2. Next, look aside or close your eyes if you like, and as you pronounce the word syllable by syllable try to think how the word looks. If you cannot remember how each syllable looks, glance at the word. Keep trying until you can 'visualize' the word clearly.

3. Now write the word on paper while pronouncing it syllable by syllable. If you fail, try to think how the word looks. If you cannot do that look at the word again. Repeat step two before trying again to write it, however. When you have written the word once, compare it with the printed word. If correct, cover it up and write it several times, always looking at it closely and pronouncing the syllables to yourself.

4. If the word was difficult, put it into the group for review and try it again the next day."

Horn and Ashbaugh 1/ recommend these steps:

"1. The first thing to do in learning to spell a word is to pronounce it correctly. Pronounce the word, saying each syllable very distinctly and looking closely at each syllable as you say it.

2. With closed eyes try to see the word in your book, syllable by syllable, as you pronounce it in a whisper. In pronouncing the word be sure to say each syllable distinctly. After saying the word keep trying to recall how the word looked in your book and at the same time say the letters. Spell by syllables.

3. Open your eyes and look at the word to see whether or not you had it right. If you did not have it right, do step one and step two over again. Keep trying until you can say the letters correctly with closed eyes.

4. When you are sure that you have learned the word, write it without looking at your book and then compare your attempt with the book in

1/ Ernest Horn and E.J.Ashbaugh, Loc. Cit.

order to see whether or not you wrote correctly. If you did not write it correctly, go through steps one, two, three and four again.

5. Now write the word again. See if it is right. If it is, cover it with your hand and write it again. If your second trial is right, write it once again. If all three trials are right, you may say that you have learned the word for the day. If you make a single mistake, begin with step one and go through each step again."

Both of these methods emphasize careful pronunciation and syllabication of each word as a first step in learning to spell it. Both utilize three kinds of perception: auditory, in pronouncing and spelling aloud; visual, in inspecting it closely and attempting to "visualize" with eyes closed; and manual, in writing the word several times.

Fernald 1/ claims great success in overcoming spell-disability, when other methods have been unsuccessful, through concentrating on motor perception to a greater degree than the methods already mentioned here. She has overcome many cases of poor spelling through exercises in tracing words, and sometimes in guiding the child's hand through the writing of the word to be learned.

As stated earlier in the chapter, most investigators agree that a method involving these three types of perception is most successful. The only point of difference

1/ Grace M. Fernald, Remedial Techniques in Basic School Subjects, New York: McGraw Hill Book Company, Incorporated, 1943, p. 196.

is where to give the greatest stress. Actually, the need probably varies with the individual child.

Test-study method as opposed to study-test.-- An issue still not settled is the relative values of the "test-study" and the "study-test" methods of teaching spelling. Briefly, in the test-study method the spelling list is dictated first and each child studies only those words which he spelled incorrectly. Advocates of this method claim it is far more efficient that the study-test, because it saves time through eliminating useless study of words already known. Foran 1/ declares,

> "The test-study method proves not only more economical but also more conducive to the development of responsibility in pupils for the improvement of their work."

Study-test supporters disagree with this point of view. They declare that greater efficiency in spelling results from direct teaching of all the words before testing. These investigators point to the fact, proved in several experiments, that words spelled correctly on the initial test, may be spelled incorrectly on the final test. They further assert that this method gives practice in making errors. Thompson 2/ says,

> "It has been too readily assumed that the test-study method is definitely superior to the study-test procedure. This assumption has in turn tended to instill a complacency that is blind to existing

1/ T.G. Foran, Op. Cit., p. 265.

2/ Robert S. Thompson, Op. Cit., p. 21.

deficiencies in spelling achievement. The question of the best general method is not yet a closed one."

Durrell 1/ offers a logical solution to this problem,

"The best criterion as to the usefulness of the 'test-study' method for a particular group is the per cent of words spelled correctly of the initial test. If 90 per cent of the words to be taught have already been mastered, the 'test-study' method probably saves time and results in little initial drill on errors. However, if a child misses 30 per cent or more of the words in the initial test the method is obviously unsuited to him, since it produces much practice in confusion. For faster learners, then, the 'test-study' method can be recommended, while for slow learners presentation and study should precede testing."

The controversy over phonics and phonetics.-- Another issue that has been the subject of much research and debate is the question of the value of phonics and of specific phonetic training in learning to read and spell. Even the meanings of the terms have been a source of confusion, some using them as synonymous while others state specific differences in defining the two words. Watson 2/ says, "Phonics is literally, in its root meaning (Webster), the 'science of sounds'." In an article in "Childhood Education Freeman, Gray and Breed 3/ explain,

" "As usually defined phonics is a form of

1/ Donald D. Durrell, Op. Cit., p. 269.

2/ Alice E. Watson, Experimental Studies in the Psychology and Pedagogy of Spelling, Contributions to Education, No. 638. New York: Teachers College, Columbia University, 1935, p. 33.

3/ Frank N. Freeman, W.S. Gray and F.S. Breed, "Summaries of Current Practices in the Teaching of Handwriting, Phonics and Spelling", Childhood Education, Vol. 17, 1926, p. 299.

analysis in which the elements of a word are recognized and their sounds blended together so that its pronunciation is derived."

Gates and Chase 1/ differentiate between phonics and phonetics,

"Phonic -- any experience or training in hearing or pronouncing words. Phonetic -- training in either translating visual words or word elements into sounds as in reading; or conversely, sounds into letters and letter combinations, as in spelling."

Thirty years ago phonics and phonetics were thoroughly taught and drilled, and the necessity for so doing was accepted without much question. About fifteen years ago phonics went "out the schoolroom window" in many systems, and a new method of reading commonly known as the "look-and-say" method came in. Gone were the long drills on letter and syllable sounds. Gone was learning the alphabet. Children learned to read by memorizing the form of a word or an entire phrase. Those with good visual memories had little difficulty in expanding this learning sufficiently to cover the correct spelling of the word. Reading was speeded up. Word-by-word reading and painful syllable-by-syllable reading, as well as phonetic spelling, which obviously caused countless errors due to the unphonetic qualities of many English words,

1/ Arthur I. Gates and Esther H. Chase, "Methods and Theories of Learning to Spell Tested by Studies of Deaf Children", Journal of Educational Psychology, Vol. 17, 1926, p. 299.

were eliminated. It was a great step forward.

Horn 1/ discovered that, "Children who learn to read by a phonic method seem to have no advantage in learning to spell.

Durrell 2/ writes, "Of one hundred children who attended the Boston University Educational Clinic in 1930, ninety showed the result of over-intensive work in phonics."

After a few years, as often happens when the pendulum swings too far, strange doubts began to be felt in the educationsl world. To be sure, many children were reading faster and better than ever before, and many were excellent spellers. Nevertheless, there were children who could neither read nor spell, and the number was growing to assume alarming proportions. The advocates of the "look-and-say" method of teaching reading had never intended that all training in the sounds of the letters of the alphabet should be eliminated, but in many school systems that was the result. Many youngsters were able to make the transfer independently from the sound of entire to the sounds of the individual letters. Others had strong enough powers of visual perception to make them naturally good spellers. But what of the others? Obviously, they needed something

1/ Ernest Horn, "A Source of Confusion in Spelling", Journal of Educational Research, (January, 1929) pp.47-55.

2/ Donald D. Durrell, Op. Cit., p. 197.

from the school that they were not getting. Gradually researchers concluded that what was needed for many of these children was phonic training.

In 1929 Horn 1/ wrote an article for the Journal of Educational Research in which he showed the absolute absurdity of trying to teach a child to spell by the use of a phonetic method. Taking the word "circumference" he showed how, by using identical sounds from words known to the sixth-grade child, it might be spelled any one of 977,738,065,920 different ways. In a second article 2/ he proceeded to spell "circumference" as "psolokhoegmp-phouriadnz". For this spelling he gave the following explanation:

"ps as in psychology
olo as in colonel
kh as in khaki
ee as in does
gm as in diaphragm
pph as in sapphire
our as in journey
ia as in parliament
dn as in Wednesday
z as in quartz."

There is no doubt that over-emphasis on the teaching of phonics produced definite cases of reading and spelling disability. Durrell 3/, speaking of the year 1936,

1/ Ernest Horn, Ibid.

2/ Ernest Horn, "The Influence of Past Experiences Upon Spelling", Journal of Educational Research, (April, 1929) Vol. 19, pp. 283-288.

3/ Donald D. Durrell, Op. Cit., pp. 197-198.

says,

> "Then, of the pupils from those schools who were sent to the Boston University Educational Clinic, 90 per cent were so weak in word analysis that they were unable to discriminate words of similar form, they guessed at words in an aimless fashion, or they were unable to make any attempt at word analysis."

Today few leaders in the field of education deny the need for some training in phonics, although it is not given the over-emphasis of thirty years ago. In support of the case for phonics Otis 1/ says,

> "Spelling ability involves first the ability to spell sounds. If our language were spelled logically -- phonetically -- it is probable that a child of school age could learn in a few months to spell any word in the language."

Watson 2/ declares,

> "The relationship between sound and visual-graphic form is intimately and pedagogically, to build associations directly from the visual appearances of words to their reproduction by graphic movements; their phonic forms cannot be entirely disregarded; for the reason that the vocal-auditory use of words is both antecedent to and more frequent than their visual-graphic use, in the development of language, in the experience of most individuals."

Gillingham and Stillman 3/ assert,

> "When a spelling case is referred for remedial help, we must first make sure of a secure foundation in phonics."

1/ A.S. Otis, "The Reliability of Spelling Scales Involving a Deviation Formula for Correlations", School and Society, (November, 1916) Vol. 4, p. 795.

2/ Alice E. Watson, Op. Cit., p. 32.

3/ Anna Gillingham and Bessie W. Stillman, Op. Cit., p.58.

Freeman, Gray and Breed 1/ write,

> "One of its [phonics] values lies in the fact that phonetic elements have the same sound in all words of which they are parts. One of its serious limitations relates to the fact that many words are unphonetic.... The facts which have been presented make it clear that boys and girls should learn to recognize words and parts of words accurately and independently."

Durrell 2/ says,

> "A child should be able to write the essential parts of a word from hearing it, even though the word may not be spelled phonetically."

Problems of spelling disability.-- So far this paper has been concerned with the aims of the classroom teacher in the field of spelling, and how these may best be accomplished. Of course, one aim is always to keep every child functioning educationally to the full extent of his capacity. This is a purpose which, like most ideals, is never quite reached. Cases of spelling disability present the following problems:

1. What is spelling disability and how can teachers recognize it?

2. What are its causes?

3. How can teachers prevent and remedy it?

The question of what spelling disability is and how

1/ Frank N. Freeman, W.S. Gray and F.S. Breed, "Summaries of Current Practices in the Teaching of Handwriting, Phonics and Spelling", Childhood Education (January, 1936) Vol. 12, p. 175.

2/ Donald D. Durrell, Op. Cit., pp. 197-198.

it can be recognized are answered by Gates and Russell 1/,

> "Some authorities state that a retardation of a half-year in Grade 2, of three-fourths of a year in Grade 3, and of one year in Grades 4 to 8 warrants special treatment; but this question can be best answered in the light of the abilities and needs of the pupil concerned.... In general, spelling disability applies to those children who are so incapable of handling the common or special words used by their peers and needed by themselves that they are definitely hindered in the fluent expression of their ideas. 'Disability' does not imply that children are incapable of learning to spell so much as that they are far below the norms for their respective grades and ages."

Children who do not acquire skill in spelling are often suspected of mental dullness. Undoubtedly lack of intelligence accounts for some poor spellers. However Houser 2/ reports the correlation of spelling and intelligence as only about .50 for an average group of children. Experiments with groups selected for spelling disability have shown much lower degrees of correlation. Concerning this Hollingworth 3/ says,

> "The correlation between measures of general intelligence and measures of spelling ability are extremely small in all groups which are composed of children selected for inability to spell."

1/ Arthur I. Gates and David H. Russell, Diagnostic and Remedial Spelling Manual, A Handbook for Teachers, New York: Bureau of Publications, Teachers College Columbia University, Revised Edition, 1940, pp. 2-3.

2/ J.D. Houser, "The Relationship of Spelling Ability to General Intelligence and to Meaning Vocabulary", Elementary School Journal, Vol. 16, 1915, pp. 190-199.

3/ L.S. Hollingworth, The Psychology of Special Disability in Spelling, Contributions to Education, No. 88, New York: Teachers College, Columbia University, 1918, p. 14.

It is, therefore, necessary to look beyond mere lack of intelligence for the causes of disability for large numbers of our poor spellers. Perhaps the next most logical place to look for the fault is in the school and the teacher. Many investigators tend to point in that direction. Witty 1/ writes,

> "It is the opinion of the writer that many so-called 'disability cases' in spelling might have been avoided or corrected had they been skillfully handled from early years."

Foran 2/ is no less harsh,

> "Recent measures of the efficiency of spelling instruction produce serious misgivings regarding the extent to which the art of teaching has profited from the science of education during the past twenty-five years."

From Fernald 3/ comes further criticism,

> "This lack [of visual and auditory perception] seems to us to be due to the use of methods not adapted to the child's abilities. He develops these visual and auditory perceptions rapidly when methods of learning are changed.... Spelling failures are due to bad habits that are forced upon the child by the school in an attempt to teach him to spell."

All this would seem to simplify the problem. If a normal child cannot spell the teacher may be at fault. The answer might seem to be to get a new teacher,

1/ P.A. Witty, "Diagnosis and Remedial Treatment of Poor Spellers", Journal of Educational Research, (January, 1926) Vol. i3, p. 39.

2/ T.G. Foran, Op. Cit., p. 366.

3/ Grace M. Fernald, Op. Cit., p. 183.

or else see that the old one learns how to teach. However, Hollingworth 1/, writing on the subject as long ago as 1918, suggests that factors other than school and teacher must account for some spelling disability. She says,

> "The data here under consideration serve to show, at all events, that children of the same Mental Age, the same Intelligence Quotient, and the same school training may and do differ from each other very greatly in ability to spell."

Gates and Chase 2/, reporting studies of the spelling of deaf children, write,

> "Spelling ability, it may be observed, falls about midway between reading and word perception. Lack of reading experience tends to put spelling ability down, whereas keenness of word perception tends to lift it up. The deaf owe their remarkable spelling ability primarily to a peculiarly effective type of perceiving, or reacting visually to words. Normal children, despite wider opportunities in reading and writing, do not seem to acquire as effective a type of word-perception. The hypothesis here offered is that normal children fail to develop this precise, accurate, and -- as far as the effects on spelling are concerned -- effective form of word observation because they rely mainly on the easier, perhaps more natural -- yet for spelling less productive -- device of phonetic translation."

In another study Gates 3/ names "Neglect of training in visual perception," as a, "causal factor of backwardness in reading and spelling".

1/ L.S. Hollingworth, Op. Cit., p. 15.

2/ Arthur I. Gates and Esther H. Chase, Op. Cit., p. 299.

3/ Arthur I. Gates, Op. Cit., p. 86.

"1. Correlations show that word-perception is an important factor in the determination of success in spelling.

2. The most common cause of misspelling is to be found in inadequacy of acquaintance with the visual form of the word.

3. Inability to make an analytical attack upon unfamiliar words is typical of the poor speller."

In another place Gates 1/ elaborates further on causes of reading and spelling disability,

"Learning wholly by the 'natural' method or 'word' method, or otherwise without training in visual perception or analysis results frequently in inappropriate methods of observing words. This occurred among pupils who had superior intelligence and no organic or physical defects which could be discovered; who were anxious to learn and had some of them, devoted unusual amounts of time to the effort. The types of difficulties found among such cases were various. For example:

a. Mis-recognition and mispronunciation due to habits of perceiving words rather vaguely as wholes, or by perceiving clearly only certain parts.

b. Inability for or ineffective methods of attacking unfamiliar words.

c. Habits of neglecting unfamiliar words accompanied by a search through the material in an effort to comprehend on a basis of such words as were familiar.

d. Mispronunciation of familiar words because of 'c'.

e. Various types of inappropriate eye-movements as a result of 'a', 'b', and 'c'.

f. Narrow eye-span due to 'a', 'b', and 'c'.

g. Failure to comprehend because attention was absorbed in effort to recognize or pronounce.

Foran's 2/ conclusions are similar to those of Gates',

"Studies of special disability indicate that

1/ Arthur I. Gates, Op. Cit. pp. 89-90.

2/ T.G. Foran, Op. Cit., p. 364.

visual perception is one of the most important, if not the most important element in the combination of abilities by which learning is effected."

Investigators seem to be in accord concerning the fact that visual, auditory and motor perceptions combine to produce spelling ability. They differ only as to which of the three is of primary value. Foran, Gates and others believe that visual perception may be foremost in importance. Others would give first place to auditory perception. Spache 1/ comments,

> "Gates and Chase indicate that groups of deaf children are not necessarily inferior in spelling. This evidence does not demonstrate that unrecognized losses are of no significance but merely that gross losses are often met by compensation....The errors in which poor spellers exceed are due, at least in part, to lack of auditory discrimination.... There is sufficient evidence to conclude that auditory discrimination plays a causal part in spelling disabilities. The evidence is confirmed by the characteristic errors of poor spellers."

Witty 2/writing about an experiment conducted with twenty-three cases of spelling disability in Grades 7-12 says,

> "The following three categories included seventy-five per cent of all errors in the hundred-word list:
>
> Attending to phonic qualities of slurred syllables.
>
> Associating specific word parts with their proper sound-unit categories.
>
> Forming plural of nouns ending in 'o'."

1/ George Spache, "Spelling Disability Correlates. Factors Probably Causal in Spelling Disability", Journal of Educational Research (April, 1941) Vol. 34, p. 563.

2/ P. A. Witty, Op. Cit., p. 42.

Bond 1/ matched a group of poor readers as to age, sex, schooling, and intelligence with a group of good readers and compared them with respect to auditory and speech characteristics. He reports the following findings,

> "A significant difference was found between the total control and experimental groups in auditory acuity.... A difference was discovered between the total control and experimental groups in auditory discrimination..... In those cases taught by a look-and-say method there is little difference between the experimental and control groups. Auditory discrimination is, therefore, another example of a special auditory ability which is of relative importance as a factor associated with reading disability in a school where a phonetic method of teaching reading is employed, and presumably insignificant in reading instruction dominated by a look-and-say type of teaching."

McGovney 2/ gives the following report on a study of spelling deficiency,

> "Fourteen children of superior intelligence were found in Grades 3, 4, 5 and 6 of the University of Iowa Elementary School who were poor spellers as shown by their records and by their teachers' opinions of their work.
>
> These children rather consistently fell below standard in certain abilities;
>
> 1. writing ,
> 2. giving phonetic sounds for letters,
> 3. perceiving small differences between words,
> 4. analyzing and recognizing word-like characters,
> 5. remembering visual symbols,

1/ Guy L. Bond, The Auditory and Speech Characteristics of Poor Readers, New York: Bureau of Publications, Teachers College, Columbia University, 1935, pp. 42-43.

2/ Margarita McGovney, "Spelling Deficiencies in Children of Superior General Ability", Elementary English Review, (June, 1930) Vol. 7, p. 148.

6. associating the spoken word with printed word-like characters.

(In 2, 3, 4, and 6 the good spellers surpassed the poor by two or three years.)"

In reporting upon the "Psychology of Special Disability in Spelling" Hollingworth 1/ states,

"Upon the whole, all studies emphasize the fact that discrimination of sound and association of visual form with the sound of the word are main elements.... Gregory 2/ has also made a study of errors. He caused dictation containing selected words to be given to the sixth, seventh, and eighth grades. From his inspection and tabulation of the errors which occurred, Gregory concludes that the sound of the word is the chief element in the spelling of children, and suggests that there should be a large amount of oral work, since the greatest percentage of error seems to be due to faulty auditory perception."

Finally, from the Introduction to "Building Word Power" by Durrell, Sullivan and Murphy 3/ the following significant statement is taken:

"Analyses of more than 4000 children who have had difficulty in learning to read show the following causes of failure, in order of frequency of occurrence:

1. Lack of auditory discrimination of word elements.
2. Lack of visual discrimination of differences between words.
3. Failure to attach meaning to words.
4. Improper adjustment of instruction to learning rate."

1/ L.S. Hollingworth, Op. Cit., p. 2.

2/ B.C. Gregory, "The Rationale of Spelling", Elementary School Teacher, Vol. 8, pp. 40-45.

3/ Donald D. Durrell, Helen Blair Sullivan, and Helen A. Murphy, Building Word Power, Yonkers-on-Hudson, New York: World Book Company, 1945, p.1.

The matter of helping poor spellers overcome their disability depends, of course, upon the individual cause. This can be determined by testing and observation. Several investigators made definite helpful suggestions, a few of which will be included here.

Gates and Russell 1/ write,

> "The alert teacher discovers individual or class difficulties as soon as they arise and takes steps to correct them and prevent their recurrence. She recognizes rather easily a pupil with a spelling disability, but recognition of difficulties is easier, unfortunately, than the remedying them. More spelling practice of the same kind is not enough. The teacher's work is to discover certain underlying causes of the difficulty and, in the light of these, to use new methods to correct the disability."

Gillingham and Stillman 2/ have already been quoted as stating that the first step in remedial spelling is to "make sure of a secure foundation of phonics".

Gates 3/ states that, "Phonic training is sometimes the means of correcting the spelling."

Watson 4/ agreeing, writes,

> "Any considerable number of 'wild' spellings calls for phonic exercises such as those used by skillful teachers in the second and third grades."

1/ Arthur I. Gates and David H. Russell, Diagnostic and Remedial Spelling Manual, New York: Bureau of Publications, Teachers College, Columbia University, 1940, p.1.

2/ Anna Gillingham and Bessie W. Stillman, Op. Cit., p. 58.

3/ Arthur I. Gates, Op. Cit., p. 80.

4/ Alice E. Watson, Op. Cit., p. 58.

Sartorius 1/ adds,

> "Since certain letter combinations are pronounced in a larger number of different ways than other letter combinations, it is probably desirable, other things being equal, to teach the child to make the more common and consistent phonetic translations than to study the less common and less consist consistent ones."

On the basis of these observations, it seems that one means of helping to overcome spelling disability might be training in auditory discrimination. It was upon this assumption that the following experiment was carried out.

1/ Ina Craig Sartorius, Generalizations in Spelling, Contributions to Education, No. 472, New York: Teachers College, Columbia University, 1931, p. 55.

CHAPTER III

DESCRIPTION OF THE EXPERIMENT

In September, 1946, for the purposes of this experiment, an experimental group and a control group were selected from the pupils of Grades Seven and Eight in the Junior High School at Plymouth, Massachusetts. Each consisted of twenty-three seventh graders who had entered the school in September, 1945 and 1946 respectively. Each child selected for either group was, according to the results of Stanford Achievement Tests 1/ given at the end of the sixth grade, a year or more retarded in spelling. Members of the control group closely matched members of the experimental group in reading ability and intelligence as well as in spelling disability.

The experimental group had one forty-five minute period a week for twenty weeks of specific drill in auditory perception. This included particular emphasis on the primary sounds of the vowels, that is; "a" as in "hat", "o" as in "lot", "e" as in "met", "i" as in "bit", and "u" as in "but". The most common sounds of the consonants "f", "b", "h", "g", "c", "l", "m", "d", "j", "k", "n", "p", "q", "r", "s", "t", "v", and "w" were

1/ Truman L. Kelley, Giles M. Ruch, and Lewis M. Terman, Stanford Achievement Test, Advanced Battery, Form G, Yonkers-on-Hudson, New York: World Book Company, 1942.

taught and practice in recognizing each of these letters as an initial consonant was provided. In addition, the consonants "f", "t", "d", "r", "l", "m", "n", "s", "c", "p", and "b" were used in drills involving the recognition of final consonants in words. Drill on the recognition of initial blends included the following common ones: "cr", "dr", "fl", "gl", "gr", "pl", "pr", "st", "th", "tr", "sh", "sp", "fr", "sw", "br", "cl", "ch". The combinations "rd", "rm", "rt", "rl", "ch", "sh", "ct", "rn", "th", "ld", "ft", "mp", "lp", "pt", "lt", "st", "nd", "nt", and "lf" were also used in drills involving their recognition as final blends.

In general, the technique followed in these lessons 1/ was suggested by Durrell, Sullivan and Murphy 2/. The listening drills used in this experiment, however, were developed to fit the vocabulary of seventh graders instead of using the primary grade vocabulary found in "Building Word Power".

Each lesson provided practice in the spelling of phonetic words, with emphasis given to the syllabication of each word when pronounced. At the conclusion of each period of drill a ten-word test was dictated. The results

1/ Lesson plans used are in Appendix II.

2/ Donald D. Durrell, Helen Blair Sullivan and Helen Murphy, Op. Cit., 102 p.

of these tests were recorded on individual graphs 1/ posted on the bulletin board, thus providing an opportunity for each pupil to follow his own progress. Each graph was labeled with a number instead of a name, and each child knew his own number. This spared the less successful any embarrassment.

Thirteen lesson plans 1/ and several spelling games 2/ covered the twenty periods. It was necessary to spend two periods instead of one drilling on the recognition of each of the primary sounds of the five vowels, as well as on the two lessons covering the final blends, recognition of which seemed to present more difficulty than either initial blends or initial or final consonants. For those pupils most deficient in auditory perception much more time could have been used to advantage.

All of the spelling words selected for drill or testing were selected from the regular spelling text book in use in the school 3/.

At the close of the school year ending in June, 1947, the results achieved by the members of the

1/ See Appendix II.

2/ See Appendix II.

3/ David H. Patton, Progressive Word Mastery, Seventh Year, New York: Charles E. Merrill Company, 1942,122 p.

experimental group on the Stanford Achievement Tests given at the close of the seventh grade were tabulated, and the progress made was statistically compared with that made by members of the control group, who had had no extra training in auditory perception.

Because of the high correlation between reading and spelling the reading achievement results were also included in this analysis.

A test of mental ability 1/ was administered to the members of each group for the purpose of comparing intelligence quotients.

An analysis of the results follows in the next chapter.

1/ Arthur S. Otis, Otis Quick-Scoring Mental Ability Tests, Beta Test, Yonkers-onHudson, New York: World Book Company, 1940.

CHAPTER IV

ANALYSIS OF DATA

The data were analyzed to determine for each group the correlations between:

1. Otis I.Q. and reading grade VI
2. Otis I.Q. and spelling grade VI
3. Otis I.Q. and reading grade VII
4. Otis I.Q. and spelling grade VII
5. Reading grade VI and spelling grade VI
6. Reading grade VII and spelling grade VII
7. Otis I.Q. and spelling gain in months

In addition, the critical ratio was determined between the spelling gains made by the experimental and the control group.

Table I, page 36, shows the scores achieved by each member of the experimental group on the Otis I.Q., reading grade VI, spelling grade VI, reading grade VII, spelling grade VII and the spelling gain in months.

Table II, page 37, shows the correlations obtained for the experimental group, using the formula 1/

$$r = \frac{\frac{\Sigma xy}{n} - cx \cdot cy}{\sigma x \ \sigma y}$$

, between the Otis I.Q. and the

1/ Harry A. Greene, Albert N. Jorgensen, and Raymond Gerberich, Measurement and Evaluation in the Elementary School, New York: Longmans, Green and Co. 1942, p. 529.

reading and spelling grades, between the reading and the spelling grades, and between the Otis I.Q. and the gain in spelling.

TABLE I

DATA ON THE EXPERIMENTAL GROUP

PUPILS	OTIS I.Q.	READ. GR.VI	SPELL. GR.VI	READ. GR. VII	SPELL. GR.VII	SPELL. GAIN IN MONTHS
1	102	5.4	6.0	7.6	7.0	+10
2	91	7.0	5.8	7.0	6.6	+ 8
3	105	7.8	5.6	8.4	6.0	+ 4
4	106	7.2	5.6	8.4	7.6	+20
5	96	7.2	5.5	5.9	6.0	+ 5
6	80	5.4	5.5	5.9	6.4	+ 9
7	105	8.1	5.4	9.5	6.0	+ 6
8	102	8.3	5.2	8.1	6.2	+10
9	94	7.3	5.2	6.5	5.6	+ 4
10	105	6.3	5.2	7.4	6.0	+ 8
11	102	6.2	5.2	7.3	6.8	+16
12	84	5.6	5.2	6.2	6.6	+14
13	82	5.4	5.2	6.3	6.6	+14
14	108	7.4	5.1	9.3	6.2	+11
15	100	7.2	5.0	7.4	6.4	+14
16	91	6.6	4.9	6.8	5.4	+ 5
17	95	6.0	4.9	7.0	5.4	+ 5
18	101	8.4	4.8	8.5	6.2	+14
19	86	5.1	4.8	5.9	6.4	+16
20	95	5.9	4.7	6.6	6.2	+15
21	86	4.8	4.7	6.1	5.1	+ 4
22	81	4.4	4.6	6.4	5.6	+10
23	96	5.8	4.4	6.8	5.4	+10

These results would seem to indicate that, whatever the reason for the lack of ability to spell, the primary cause, as far as these twenty-three cases are concerned, is neither lack of intelligence nor disability in reading.

Also, the lack of any correlation between the Otis I.Q. and the gain in spelling seems to eliminate intelligence as a main factor in the improvement made during the school year, assuming that the Otis I. Q.'s obtained are a reasonably accurate indication of the actual intelligence of the cases under consideration.

TABLE II

CORRELATIONS OBTAINED FOR THE EXPERIMENTAL GROUP 1/

X AXIS	Y AXIS	CORRELATIONS	STATISTICAL SIGNIFICANCE
Otis I.Q.	Read.Gr. 6	.2394	none
Otis I.Q.	Read.Gr. 7	.2763	none
Otis I.Q.	Spell.Gr.6	.2950	none
Otis I.Q.	Spell.Gr.7	.1656	none
Read.Gr. 6	Spell.Gr.6	.0985	none
Read.Gr. 7	Spell.Gr.7	.1737	none
Otis I.Q.	Spell.Gain	.0082	none

Table III, page 38, shows the scores achieved by each member of the control group on the Otis I.Q., reading grade VI, spelling grade VI, reading grade II, spelling grade II, and the spelling gain in months.

Table IV, page 39, shows the correlations obtained from the data collected for the control group.

1/ For scatter diagrams illustrating these correlations see Appendix I.

TABLE III

DATA ON THE CONTROL GROUP

PUPILS	OTIS I.Q.	READ. GR.VI	SPELL. GR.VI	READ. GR.VII	SPELL. GR.VII	SPELL. GAIN IN MONTHS
1	105	7.8	5.9	8.0	6.8	+ 9
2	103	6.8	5.9	5.7	5.8	- 1
3	101	6.2	5.9	6.7	5.4	- 5
4	109	8.1	5.8	9.0	7.2	+14
5	108	6.6	5.8	8.3	5.6	- 2
6	92	6.4	5.6	7.0	6.6	+10
7	101	5.6	5.6	6.4	6.6	+10
8	95	5.5	5.6	6.8	5.9	+ 3
9	94	4.9	5.6	5.8	5.9	+ 3
10	94	7.2	5.5	7.4	6.2	+ 7
11	91	7.0	5.5	7.0	5.9	+ 4
12	85	5.8	5.5	7.0	5.9	+ 4
13	110	8.3	5.4	9.8	6.4	+10
14	119	8.3	5.4	7.5	5.5	+ 1
15	95	4.9	5.4	5.9	5.9	+ 5
16	95	7.0	5.2	9.5	6.0	+ 8
17	100	6.8	5.2	7.3	5.2	0
18	92	6.4	5.2	7.6	6.4	+12
19	92	5.8	5.1	6.8	5.2	+ 1
20	94	5.6	4.8	6.2	5.1	+ 3
21	95	4.8	4.8	7.2	5.8	+10
22	96	6.0	4.7	7.0	5.0	+ 3
23	99	6.2	4.0	6.0	4.4	+ 4

TABLE IV

CORRELATIONS OBTAINED FOR THE CONTROL GROUP 1/

X AXIS	Y AXIS	CORRELATIONS	STATISTICAL SIGNIFICANCE
Otis I.Q.	Read.Gr. 6	.2151	none
Otis I.Q.	Read.Gr. 7	.1825	none
Otis I.Q.	Spell.Gr.6	.1116	none
Otis I.Q.	Spell.Gr.7	.0617	none
Read.Gr. 6	Spell.Gr.6	.0688	none
Read.Gr. 7	Spell.Gr.7	.1305	none
Otis I.Q.	Spell.Gain	.1163	none

These results coincide with those found for the experimental group.

A comparison of the medians obtained for the two groups would seem to give the control group a slight advantage over the experimental group at the end of grade six. Table V gives a comparison of the medians of the two groups in Otis I.Q., spelling Grade VI and reading grade VI.

TABLE V

COMPARISON OF MEDIANS -- END OF GRADE SIX

	EXPERIMENTAL GROUP	CONTROL GROUP
Otis I.Q.	95.2	98.5
Spell. Gr. VI	5.2	5.4
Read. Gr. VI	6.2	6.2

1/ For scatter diagrams illustrating these correlations see Appendix I.

Thus the median of the control group is 3.3 points higher than that of the experimental group in intelligence, according to I.Q.'s obtained from the Otis Quick-Scoring Tests of Mental Ability, and two months higher at the median point in spelling, with no difference in reading grade, according to results obtained from the Stanford Achievement Tests given in May near the end of the sixth grade. These differences are very slight.

It is significant, however, that a comparison of the medians obtained from the Stanford Achievement Tests administered in May near the end of grade seven shows a decided reverse with the experimental group ahead of the control group in spelling, and even slightly higher in reading. Table VI gives a comparison of the medians of the two groups in Otis I.Q., spelling grade VII, reading grade VII and gain in spelling.

TABLE VI

COMPARISON OF MEDIANS -- END OF GRADE VII

	EXPERIMENTAL GROUP	CONTROL GROUP
Otis I.Q.	95.2	98.5
Spell. Gr. VII	6.2	5.9
Read. Gr. VII	7.2	7.1
Spell. Gain	9.9	4.8

Thus the experimental group, despite a slight disadvantage in spelling grade and Otis I.Q. at the outset of grade seven, showed a median gain of 5.1 months more than the median gain of the control group.

A statistical comparison of the gain in spelling in months achieved by the experimental with that achieved by the control group, using the Sorenson 1/ formula,

$$\text{Critical Ratio} = \frac{\text{Difference } M_1 - M_2}{\sigma \text{ Difference}},$$

yields a critical ratio of 3.71. Table VII shows the mean scores achieved by the experimental and the control groups and the resulting critical ratio.

TABLE VII

CRITICAL RATIO OF SPELLING GAINS

GROUP	NO.	MEAN	S.E.M.	S.D.	M^1-M^2	S.E.D.	C.R.
Experimental	23	9.87	.933	4.57	5.09	1.37	3.71
Control	23	4.78	.998	4.78			

According to Sorenson 2/ a critical ratio of 3.7 has a predictive value of 999.89 chances out of a 1000.

1/ Herbert Sorenson, Statistics for Students of Psychology and Education, New York: McGraw-Hill Book Company, Inc., 1936, p. 329.

2/ Ibid., p.357.

CHAPTER V

SUMMARY AND CONCLUSIONS

The purpose of this study was to compare achievement in spelling in a group of seventh-grade cases of spelling disability who had, for twenty weeks, a weekly period of specific drill in auditory perception, with the achievement in spelling in a group of seventh-grade cases of spelling disability who had no such extra drill.

There were forty-six children in the two seventh-grade groups, twenty-three in each. The members of the experimental group were selected from grade seven in the school year 1946-1947 and matched to a control group selected from the seventh grade in the same school of the previous year, 1945-1946. The same English teachers taught spelling to the members of both groups during their regular seventh-grade classes.

The intelligence was determined by the Otis Test of Mental Ability 1/. Achievement in reading and

1/ Arthur S. Otis, Loc. Cit.

spelling was determined by the results of the Stanford Achievement Tests 1/ administered in May near the close of the sixth grade and again the following May, near the close of the seventh grade. These tests were given to both the experimental and the control groups.

The data were analyzed to compare achievement in spelling in each group.

A comparison of the spelling grades obtained for each group at the close of their sixth and seventh school years shows a greater gain in spelling for the experimental group to which was given specific drill in auditory perception. (See the table on page 36.) Each member of the experimental group showed some gain, the smallest being four months and the greatest twenty months. Thirteen children, or more than half of the group, made gains of a school year or more between the close of their sixth and seventh years in school.

In the control group, on the other hand (see table on page 38) three pupils showed losses, according to the test results, and one registered neither gain nor loss. The lowest registered a loss of five months,

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2/ Truman L. Kelley, Giles M. Ruch and Lewis M. Terman, Loc. Cit.

while the highest showed a gain of fourteen months. Only six of the twenty-three pupils of the control group showed gains of a year or more in spelling, while thirteen registered gains of less than half a school year, or actual losses.

The experimental group showed a median gain of 9.9 months as compared to a median gain of 4.8 months for the control group. (See chart on page 40.) Thus the median gain for the experimental group was 5.1 months, or about half a school year, higher than that of the control group.

The critical ratio of 3.71 1/, obtained from a comparison of the gains in spelling by pupils in the experimental group with those of the control group, permits the conclusion that if the same experiment were repeated, with all circumstances exactly duplicated, the same results would be obtained nine hundred and eighty-nine times out of a thousand. Since, as previously stated, the members of the experimental group, to whom specific drill in auditory perception was given, showed 5.1 months more gain in spelling than the members of the control group, who did not have this

1/ Herbert Sorenson, Op. Cit., p.367.

special instruction, it seems a reasonable assumption that specific drill in auditory perception may have some value in helping to improve the spelling of cases of spelling disability at the seventh-grade level.

CHAPTER VII

SUGGESTIONS FOR FURTHER RESEARCH

1. Similar experiments carried out at other upper-grade levels.

2. Experiments conducted at the same level with a larger number of cases.

3. Experiments conducted at the same level with more than one period a week given to this type of instruction.

4. Similar experiments giving specific training in visual perception.

5. Similar experiments with an analysis of sex differences.

6. Similar experiments with the I.Q.'s obtained from individual Binet tests for greater accuracy in determining relative intelligence.

7. Similar experiments conducted with groups made up of pupils who are poor spellers and who definitely lack auditory discrimination as shown by results of specific tests in this skill.

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University of Education Library

APPENDIX I

DIAGRAMS AND CHARTS

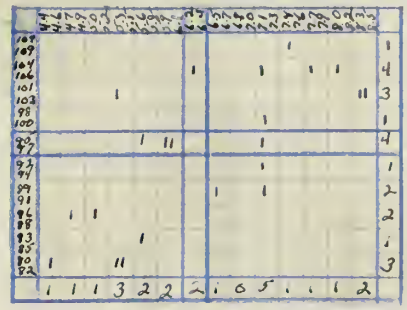
Boston University
School of Education
Library

SCATTER DIAGRAMS OF CORRELATIONS

EXPERIMENTAL GROUP

Reading 6

Otis I.Q.



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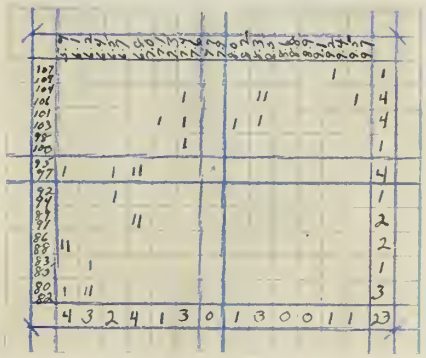
Spelling 6

Otis I.Q.

r = .2950

Reading 7

Otis I.Q.



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Spelling 6

Otis I.Q.

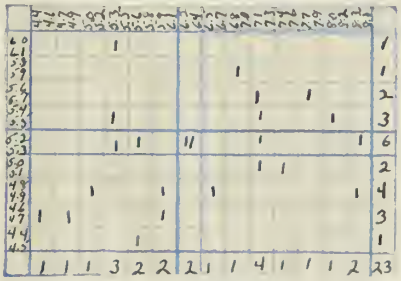
r = .1656

SCATTER DIAGRAMS OF CORRELATIONS

EXPERIMENTAL GROUP

Reading 6

Spelling 6



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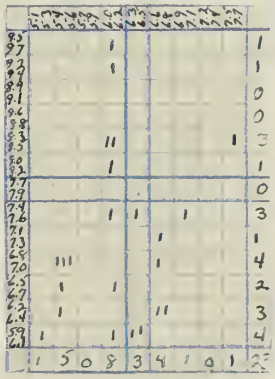
Spelling 7

Reading 7



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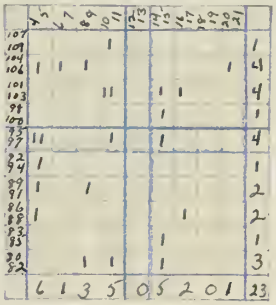
Gain in Spelling

Otis I.Q.



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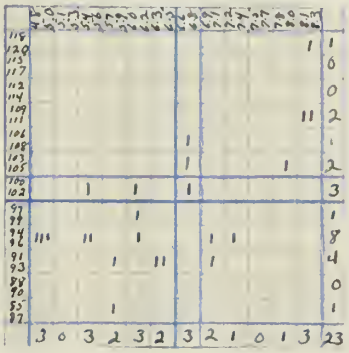
SCATTER DIAGRAMS OF CORRELATIONS

CONTROL GROUP

Reading 6

Otis

I.Q.



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Reading 7

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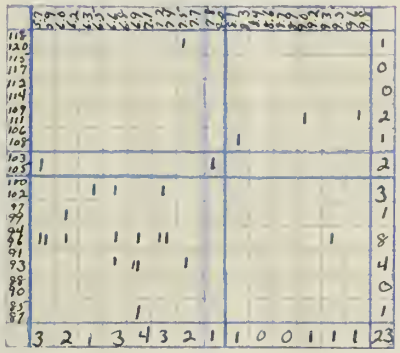

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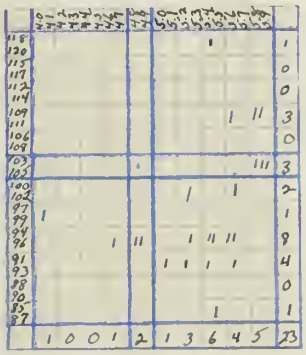
SCATTER DIAGRAMS OF CORRELATIONS

CONTROL GROUP

Spelling 6

Otis

I.Q.



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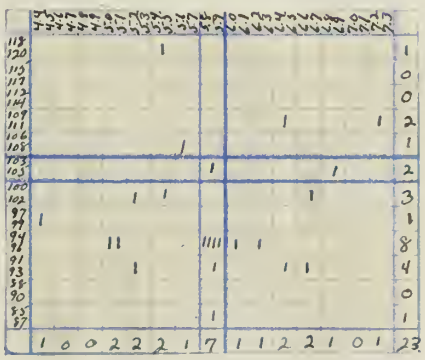
Spelling 7

Otis

I.Q.



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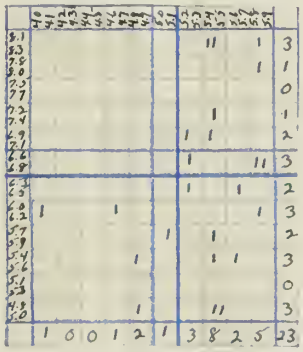
SCATTER DIAGRAMS OF CORRELATIONS

CONTROL GROUP

Spelling 6

Reading 6



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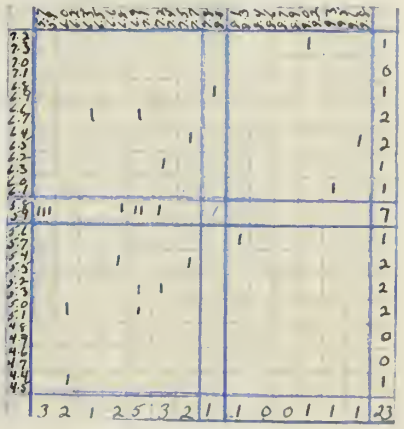
Reading 7

Spelling 7



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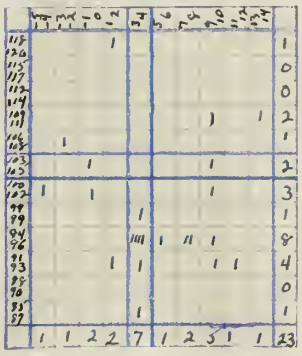
Gain in Spelling

Otis I.Q.

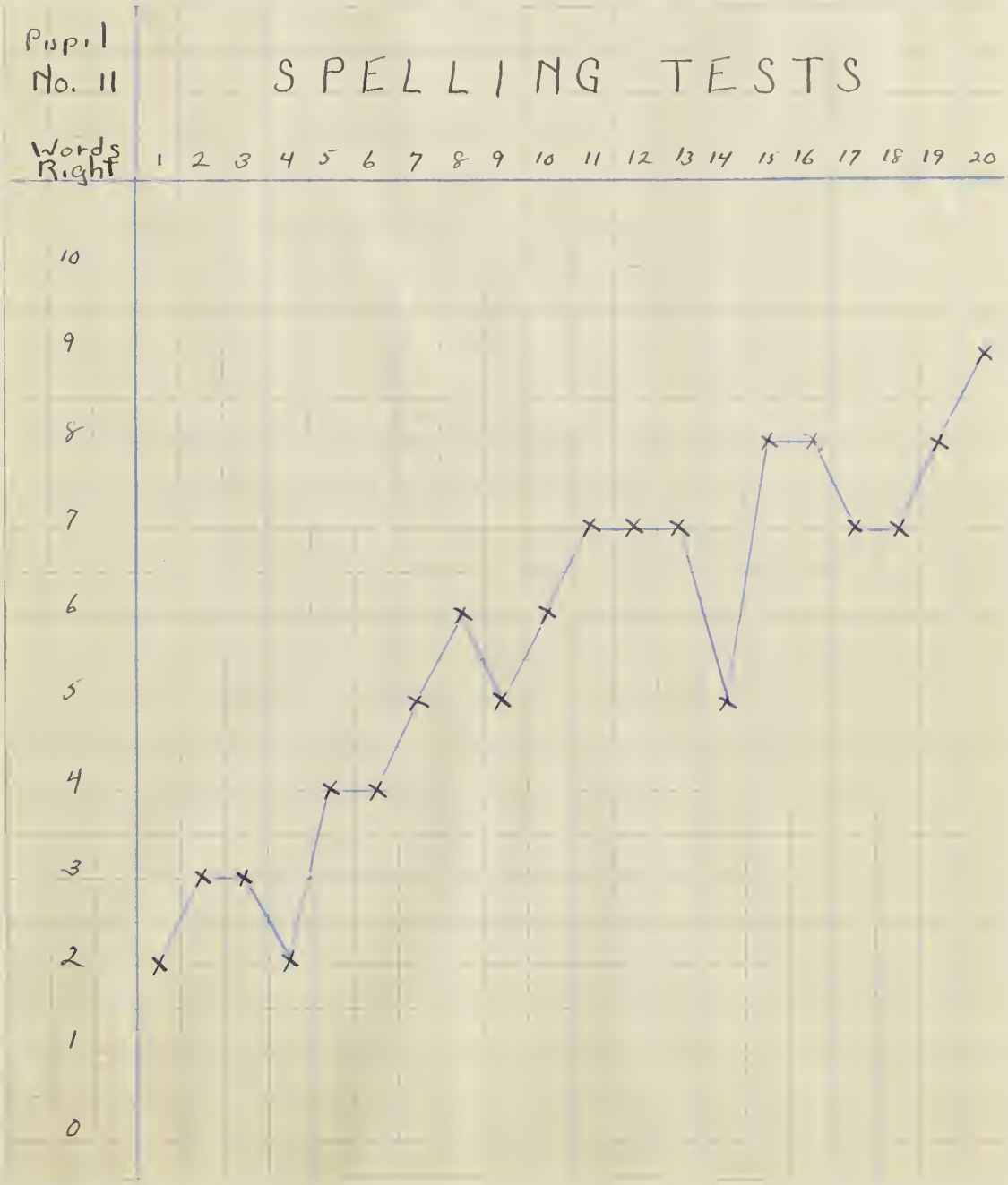


r = .1163

A SAMPLE OF THE GRAPH USED

IN THIS

EXPERIMENT



APPENDIX II

LESSON PLANS AND GAMES

THIRTEEN DRILL LESSONS IN AUDITORY PERCEPTION

AIMS:

1. To test the ability of each member of the Experimental Group to recognize initial consonants, Lessons One and Two; final consonants, Lesson Three; initial blends, Lessons Four, Five and Six; final blends, Lessons Seven and Eight; and the primary sounds of the five vowels, lessons Nine, Ten, Eleven, Twelve, and Thirteen.

2. To provide drill in auditory perception that would enable each child to recognize more readily those sounds mentioned in the first aim.

3. To provide practice in spelling phonetic words.

4. To test the ability of each member of the Experimental Group to spell phonetic words.

5. To trace the possible growth of each, by use of individual graphs, in the ability to spell phonetic words.

PROCEDURE:

I. Preliminary tests for Lessons One through Eight.--Each child was provided with paper and told to number one to twenty, allowing room after each number for one letter in Lessons One, Two, Three and Four, and two letters in Lessons Five, Six, Seven and Eight. The words of each Preliminary Test were pronounced slowly, preceded by the word numbers. The children were instructed to write the

first letter of each word, in Lessons One and Two; the last letter, in Lesson Three; the first two letters, in Lessons Four, Five and Six, and the last two letters in Lessons Seven and Eight. Immediately following the Preliminary Test the words were repeated, the correct letter or letters for each given, and each child allowed to correct his own test. Below the test he was then instructed to write the words, "Letters I Failed to Hear Correctly", and below this he recorded any letters or blends failed.

Preliminary Tests for Lessons Nine through Thirteen.-- Papers were passed and prepared just as for Lessons One through Eight. The words were pronounced in the same way, each preceded by its number. For these five lessons the class members were instructed to listen for and write just the first vowel sound in each word. The tests were corrected and errors recorded exactly as in the first eight lessons.

II. Practice in Auditory Discrimination for Lessons One through Eight.-- For each one of the letters or blends comprising the lesson under consideration a group of approximately ten words was pronounced. The majority of the words in the group would begin or end with a letter or blend named to the group in advance. Three or four words would begin or end, instead, with other letters or blends being considered in that lesson. The class was instructed

to write the letters or blends, other than the one named, that began or ended words. (See instructions with each lesson.)

Each set of practice drills was corrected immediately before proceeding to the next one, each child correcting his own. Failures were recorded under "Letters I Failed to Hear Correctly". A volunteer gave the correct answers, and those having the set correct were asked to raise their hands. This enabled the teacher to note in passing the letters and combinations needing more drill. If time permitted before the close of the period the sets which caused the most difficulty were used again for oral drill.

Practice in Auditory Discrimination for Lessons Nine through Thirteen.-- The class members were instructed to number from one to ten for each set. There were from five to seven sets for each lesson. The teacher pronounced ten words, each preceded by its number. The pupils were told to write "yes" for each word in which the first vowel sound was that of the vowel under consideration for the lesson, and "no" for each word in which the first vowel sound was not the primary sound of the vowel being drilled. It might be another sound of the same vowel, but the correct answer would still be "no". The correcting procedure was the same as that for Lessons One through Eight.

III. Practice in spelling phonetic words.-- This section consisted of ten phonetic words. Each word was pronounced by the teacher carefully and slowly, by syllables, and the children wrote it on their papers, trying to spell it correctly from the sound of the syllables. A volunteer wrote each word on the board. The pupils corrected their own words, one at a time, each word being written and corrected before proceeding to the next.

IV. Test on phonetic words.-- Section Four consisted of ten dictated words, written on a separate piece of paper, and corrected by the teacher. Results were recorded on individual line graphs. 1/

1/ A sample of this graph may be seen on page 58 in Appendix I.

LESSON ONE

Initial consonants: f, b, h, g, c, l, m, d, and j

Procedure:

I. Preliminary Test

Write the first letter in each of the following words: 1. faculty, 2. banquet, 3. humorous, 4. guarantee, 5. camphor, 6. leisure, 7. mysterious, 8. dreary, 9. jury, 10. locomotive, 11. decision, 12. missionary, 13. bouquet, 14. coach, 15. finance, 16. hustle, 17. gaze, 18. courtesy, 19. manufactured, 20. jealousy.

II. Practice in Auditory Discrimination

A. In the following ten words three do not begin with "f". Write the first letter of each word that does not begin with "f".

furious, fountain, formal, gasoline, finance, hustle, festival, fiction, faculty, correspond.

B. Write the first letter in each of the following words that does not begin with a "b".

buckle, golf, beast, brilliant, benefit, behavior, bouquet, ghost, bracelet, familiar.

C. Write the first letter in each of the following words that does not begin with an "h".

hustle, hurricane, hurrah, combination, league, hostile, horizon, majority, hearth, hasten.

D. Write the first letter of each of the following words that does not begin with "g".

globe, graduate, joyful, ghost, discussion, garbage, gallery, guarantee, gaze, humorous.

E. Write the first letter of each of the following words that does not begin with "c".

cucumber, courtesy, correspond, latter, marriage, congratulate, commercial, combination, feeble, convention.

F. Write the first letter of each of the following words that does not begin with "l".

location, lecture, latter, leisure, magazine, literary, familiar, lodge, league, hasten.

G. Write the first letter of each of the following words that does not begin with "m".

mysterious, mourn, discussion, manufactured, majority, jewelry, magazine, marriage, hurricane, maintain.

H. Write the first letter of each of the following words that does not begin with "d".

dreary, domestic, janitor, decision, decrease, globe, distribute, dispatch, league, disaster.

I. Write the first letter of each of the following words that does not begin with "j".

janitor, brilliant, furious, jealousy, judgment, horizon, junior, jury, jewelry, joyful.

III. Practice with Phonetic Words

Write the following words just the way they sound: faculty, hastily, gallery, majority, difficulty, jury, jewelry, family, gladly, carefully.

IV. Test on Phonetic Words

justly, badly, confidently, lonely, masterly, delivery, joyfully, independently, swiftly, horizon.

LESSON TWO

Initial consonants: k, n, p, q, r, s, t, v, w.

Procedure:

I. Preliminary Test

Write the first letter in each of the following words: 1. kerosene, 2. naturally, 3. parallel, 4. quality, 5. radiator, 6. sanitary, 7. temperance, 8. vicinity, 9. wage, 10. temple, 11. vulgar, 12. recover, 13. sensible, 14. quote, 15. permit, 16. kingdom, 17. nerve, 18. weapon, 19. quiver, 20. ventilate.

II. Practice in Auditory Discrimination

A. Write the first letter of each of the following words that does not begin with "k".

kerosene, kingdom, kitten, noble, killer, kidding, supply, keeper, rural, kindling.

B. Write the first letter of each of the following words that does not begin with "n".

naturally, necessity, talent, numerous, patriot, nonsense, normal, razor, nervous, struggle.

C. Write the first letter of each of the following words that does not begin with "p".

parallel, parcel, pardon, particularly, sanitary, quality, pierce, permit, worthy, pearl.

D. Write the first letter of each of the following words that does not begin with "q".

quality, nervous, quote, quest, quiver, verse, quit, quantity, killer, quell.

E. Write the first letter of each of the following words that does not begin with "r".

radiator, wisdom, rebel, reception, quit, razor, rural, reception, nonsense, recover.

F. Write the first letter of each of the following words that does not begin with an "s".

sanitary, satisfaction, supply, keeper, permit, secure, sacred, readiness, struggle, vote.

G. Write the first letter of each of the following words that does not begin with "t".

temperance, temple, ventilate, talent, vulgar, tremble, terrible, tendancy, sanitary, temptation.

H. Write the first letter of each of the following words that does not begin with "v".

vicinity, wooden, victory, visible, vacant, nervous, vegetation, wicked, vice, verse.

I. Write the first letter of each of the following words that does not begin with "w".

wage, vacant, wedding, wicked, recover, wilderness, wisdom, quantity, worst, worthy.

III. Practice with Phonetic Words

Words that end with the sound of "l" often are spelled "le". Practice writing the following words. Write them just the way they sound, remembering the ending "le".

noble, resemble, struggle, temple, tremble, handle, fumble, scramble, humble, grumble.

IV. Test on Phonetic Words

sensible, tendency, victory, ample, capacity, entitle, feeble, startle, rumble, hastily.

LESSON THREE

Final consonants: f, t, d, r, l, m, n, s, c, p, b.

Procedure:

I. Preliminary Test

Write the last letter you hear in each of the following words.

1. auditorium, 2. pioneer, 3. domestic, 4. salad, 5. civil, 6. ballot, 7. chum, 8. confess, 9. proof, 10. shrub, 11. develop, 12. conceal, 13. taxicab, 14. Catholic, 15. popular, 16. wisdom, 17. acid, 18. mourn, 19. sportsmanship, 20. sheriff.

II. Practice in Auditory Discrimination

A. Write the last letter in each of the following words that does not end with "n".

organ, pardon, basis, summon, ship, margin, salmon, reckon, rear, treason.

B. Write the last letter in each of the following words that does not end with "f".

sheriff, stiff, genius, proof, belief, stuff, sheaf, turf, rear, margin, tariff.

C. Write the last letter of each of the following words that does not end with "s".

confess, congress, rear, museum, genius, domestic, possess, process, readiness, reckless.

D. Write the last letter of each of the following words that does not end with "c".

Catholic, frolic, terrific, taxicab, colic, stiff, hasten, domestic, antic, panic.

E. Write the last letter of each of the following words that does not end with "r".

actor, altogether, domestic, reindeer, affair, pearl, behavior, vulgar, genius, rear.

F. Write the last letter of each of the following words that does not end with "m".

auditorium, madam, maiden, wisdom, kingdom, farewell, gymnasium, affair, drum, fathom.

G. Write the last letter of each of the following words that does not end with "d".

obliged, occupied, exhibit, occurred, permitted, proceed, shrub, develop, aboard, applied.

H. Write the last letter of each of the following words that does not end with "l".

civil, cereal, ship, conceal, farewell, fearful, bracelet, misspell, cancel, mourn.

I. Write the last letter of each of the following words that does not end with "t".

credit, rear, diet, exhibit, sportsmanship, permit, profit, alphabet, horrid, banquet.

J. Write the last letter of each of the following words that does not end with "p".

develop, ship, shrub, sportsmanship, grip, flop, domestic, trip, proof, gallop.

K. Write the last letter of each of the following words that does not end with "b".

shrub, grab, sacred, taxicab, throb, glib, flop, grub, coin, crib.

III. Practice with Phonetic Words

Write the following words from dictation, spelling them just the way the sound.

madam, ringing, resemble, family, sending, forbid, domestic, develop, dignity, popular.

IV. Test on Phonetic Words

everything, credit, demanding, charming, singing, interesting, tremble, jewelry, quantity, majority.

LESSON FOUR

Initial blends: cr, dr, fl, gl, gr.

Procedure:

I. Prelimary Test

Write the first two letters in each of the following words.

1. drain, 2. criminal, 3. gracious, 4. glider, 5. flower, 6. crystal, 7. flare, 8. drawer, 9. glimpse, 10. grieve.

II. Practice in Auditory Discrimination

A. Write the first two letters in each of the following words that does not begin with "cr".

criminal, critical, drain, crystal, gracious, glorious, cruelty, crazy, creature, cramp.

B. Write the first two letters in each of the following words that does not begin with "dr".

drain, drawer, dreary, gradual, dripping, dropped, glider, drastic, crystal, drugging.

C. Write the first two letters in each of the following words that does not begin with "fl".

flower, flood, dreary, flow, flush, flash, graduate, flare, glimpse, flutter.

D. Write the first two letters in each of the following words.

glider, glimpse, gradually, glorious, flower, globe, gleam, cruelty, glare, glisten.

E. Write the first two letters in each of the following words that does not begin with "gr".

gracious, gradually, flood, graduate, glimpse, grandparents, grieve, criminal, grower, grave.

III. Practice with Phonetic Words

Write the following words, spelling them just as they sound:

glider, cruelty, proportion, flush, graduate, reputation, dripping, cramp, conversation, frolic.

IV. Test on Phonetic Words

explanation, faculty, location, jewelry, globe, visible, temptation, resemble, hastily, gradually.

LESSON FIVE

Initial blends: pl, pr, st, th, tr, sh.

Procedure:

I. Preliminary Test

Write the first two letters in each of the following words.

1. stanza, 2. thermometer, 3. treason, 4. shepherd, 5. plateau, 6. practical, 7. student, 8. prefer, 9. please, 10. shortage, 11. threat, 12. treasure.

II. Practice in Auditory Discrimination

A. Write the first two letters in each of the following words that does not begin with "pl".

plateau, please, prefer, plow, pleasure, threat, plank, planet, shortage, plaster.

B. Write the first two letters in each of the following words that does not begin with "pr".

practical, prairie, prefer, plow, presence, profit, treason, probable, stranger, preparation.

C. Write the first two letters in each of the following words that does not begin with "st".

stanza, statement, sheriff, stationary, threat, statue, stranger, struggle, plateau, strife.

D. Write the first two letters in each of the following words that does not begin with "th".
thereafter, thermometer, treasure, thirst, thorough, shortage, throne, prefer, threat, three.

E. Write the first two letters in each of the following words that does not begin with "tr".
traitor, tread, thirst, treason, treasure, treaty, stranger, tremble, trousers, please.

F. Write the first two letters in each of the following words that does not begin with "sh".
shepherd, sheriff, student, ship, thirst, shrub, shrink, treason, shortage, shelf.

III. Practice with Phonetic Words

Write the following words, spelling them just as they sound.
prefer, plank, planet, practical, shortage, profit, preparation, stranger, student, tremble.

IV. Test of Phonetic Words
plow, plaster, probable, concern, consideration, editor, elevator, glider, flush, shelf.

LESSON SIX

Initial blends: sp, fr, sw, br, cl, ch.

Procedure:

I. Preliminary Test

Write the first two letters in each of the following words.

1. fragrant, 2. sportsmanship, 3. brilliant, 4. clumsy, 5. chapel, 6. swing, 7. frightened, 8. British, 9. clover, 10. champion, 11. speller, 12. sweater.

II. Practice in Auditory Discrimination

A. Write the first two letters in each of the following words that does not begin with "sp".

sportsmanship, spelling, ship, spring, spade, clothes, spike, spent, fragrant, spatter.

B. Write the first two letters in each of the following words that does not begin with "fr".

fragrant, frequent, swing, frightened, frosting, cloth, fresh, fraud, spinning, swelling.

C. Write the first two letters in each of the following words that does not "sw".

swing, sweep, spade, swerve, sweet, swivel, cluster, chum, chum, swamp, swollen.

D. Write the first two letters in each of the following words that does not begin with "br".

bracelet, clover, brilliant, British, fresh, bravery, brother, sport, brink, brood.

E. Write the first two letters in each of the following words that does not begin with "cl".

clumsy, cluster, clutch, spatter, swish, clothes, cleaner, chapel, clank, clash.

F. Write the first two letters in each of the following words that does not begin with "ch".

chairman, champion, shiver, changeable, chapel, clinging, charming, chum, British, chest.

III. Practice with Phonetic Words

Write the following words, spelling them as they sound.

fragrant, sportsmanship, clumsy, chapel, swing, British, frosting, cluster, chum, clinging.

IV. Test on Phonetic Words

clover, sweep, bravery, spring, fresh, chimney, chest, swish, spatter, shiver.

LESSON SEVEN

Final blends: rd, rm, rt, rl, ch, sh, ct, rn, th.

Procedure:

I. Preliminary Test

Write the last two letters in each of the following words.

1. reward, 2. astonish, 3. attach, 4. cistern, 5. charm, 6. conflict, 7. depth, 8. expert, 9. pearl, 10. publish.

II. Practice in Auditory Discrimination

A. Write the last two letters in each of the following words that does not end with "rd".

reward, shepherd, astonish, aboard, dispatch, mustard, awkward, govern, toward, depth.

B. Write the last two letters in each of the following words that does not end with "sh".

accomplish, publish, dispatch, astonish, pearl, British, establish, distinct, concern, Standish.

C. Write the last two letters in each of the following words that does not end with "ch".

attach, publish, coach, dispatch, depth, switch, rich, aboard, watch, defect.

D. Write the last two letters in each of the following words that does not end with "rn".

cistern, concern, charm, resort, govern, intern, astonish, burn, attach, barn.

E. Write the last two letters in each of the following words that does not end with "rm".
charm, alarm, concern, firm, expert, swarm, form, mustard, harm, swirl.

F. Write the last two letters in each of the following words that does not end with "ct".
conflict, construct, youth, defect, import, distinct, shepherd, extract, govern, enact.

G. Write the last two letters in each of the following words that does not end with "th".
depth, whirl, youth, wreath, accomplish, awkward, hearth, birth, coach, path.

H. Write the last two letters in each of the following words that does not end with "rt".
expert, resort, twirl, depth, import, fort, British, start, part, coach.

I. Write the last two letters in each of the following words that does not end with "rl".
girl, whirl, swirl, impart, form, twirl, dispatch, snarl, unfurl, wreath.

III. Phonetic Word Practice

Write the following words, spelling them as they

sound.

reward, awkward, publish, astonish, dispatch, govern, conflict, youth, resort, defect.

IV. Test on Phonetic Words

continuance, expert, impart, performance, distinct, snarl, shepherd, dividend, depth.

LESSON EIGHT

Final Blends: ld, ft, mp, lp, pt, lt, st, nd, nt, lf.

Procedure:

I. Preliminary Test

Write the last two letters in each of the following words.

1. instrument, 2. understand, 3. consist, 4. consult, 5. interrupt, 6. golf, 7. scalp, 8. swamp, 9. swift, 10. yield, 11. help, 12. wolf, 13. corrupt, 14. difficult, 15. yeast, 16. beyond, 17. appoint.

II. Practice in Auditory Discrimination

A. Write the last two letters in each of the following words that does not end with "nt".

urgent, fragrant, ascend, complaint, difficult, brilliant, opponent, contrast, arrangement, frequent.

B. Write the last two letters in each of the following words that does not end with "nd".

dividend, understand, beyond, golf, yield, demand, yeast, depend, correspond, ascend.

C. Write the last two letters in each of the following words that does not end with "st".

host insist, wolf, motorist, disgust, interrupt, boast, accent, protest, worst.

D. Write the last two letters in each of the following words that does not end with "lt".
consult, urgent, difficult, welt, beyond, insult, default, earnest, assault, jolt.

E. Write the last two letters in each of the following words that does not end with "pt".
slept, interrupt, scalp, lamp, abrupt, disrupt, construct, lept, corrupt, crept.

F. Write the last two letters in each of the following words that does not end with "lf".
golf, wolf, field, himself, rift, elf, shelf, romp, gulf, self.

G. Write the last two letters in each of the following wouds that does not end with "lp".
scalp, whelp, gulf, help, abrupt, yelp, gulp, wield, kelp, pulp.

H. Write the last two letters in each of the following words that does not end with "mp".
swamp, romp, tenant, stamp, ascend, tramp, thump, limp, distrust, hemp.

I. Write the last two letters in each of the following words that does not end with "ft".
swift, heft, yield, slump, left, aloft, shift, corrupt, rift, waft.

J. Write the last two letters in each of the following words that does not end with "ld".

yield, held, consult, wield, weld, mold, rift, mild, bold, golf,.

III. Practice with Phonetic Words

Write the following words, spelling them as they sound.

slump, swift, abrupt, distrust, consult, hamper, gulf, argument, weld.

IV. Test on Phonetic Words

tenant, disrupt, shift, fragrant, depend, disgust, investment, jury, visible, instrument.

LESSON NINE

Primary sounds of the vowels: "a"

Procedure:

I. Preliminary Test

Write the first vowel you hear in each of the following words.

1. absolute, 2. vision, 3. soften, 4. salmon, 5. solitude, 6. parallel, 7. acid, 8. benefit, 9. custard, 10. madam, 11. impression, 12. hangar, 13. celebration, 14. faculty, 15. camphor, 16. buckle, 17. naturally, 18. cancel, 19. gasoline, 20. observe.

II. Practice in Auditory Discrimination

A. Number 1-10. Write "yes" for each dictated word in which the first vowel sound is the primary sound of "a", as in hat. Write "no" for each word in which the first vowel sound is not the primary sound of "a".

cashier, appetite, ambition, introduce, gradually, corridor, manual, admission, semester, janitor.

B. Follow the directions for A.

graduate, gymnasium, acid, normal, bashful, ample, circulation, encourage, advertising, statue.

C. Follow the directions for A.

stanza, famine, salesman, Catholic, argument, garbage, sanitary, faculty, accompany, gaze.

D. Follow the directions for A.

gallery, attendance, manufactured, satisfactory, hastily, annual, accent, attacked, sauce, sacred.

E. Follow the directions for A.

parallel, airplane, assigned, salmon, pardon, plateau, camphor, applied, sacred, banquet.

III. Practice with Phonetic Words

Write the following words just the way they sound.

ambition, manual, janitor, graduate, ample, acid, advertising, bashful, stanza, sanitary.

IV. Test on Phonetic Words

satisfactory, Catholic, manufactured, banquet, absolute, parallel, actual, ambulance, cabinet, solitude.

LESSON TEN

Primary vowel sounds: "u"

Procedure:

I. Preliminary Test

Write the first vowel you hear in each of the following words.

1. humble, 2. hasten, 3. happen, 4. mustard, 5. judgment, 6. instrument, 7. consult, 8. unusual, 9. justify, 10. hemp, 11. difficult, 12. clumsy, 13. suggested, 14. correspond, 15. construct, 16. punishment, 17. submit, 18. plateau, 19. buckle, 20. culture.

II. Practice in Auditory Discrimination

Follow the directions in Lesson Nine, A. Substitute the letter "u" for "a".

A. punishment, unusual, vision, mustard, torch, uncomfortable, judgment, justify, ample, culture.

B. stupid, hurrah, nervous, publisher, assistant, customer, hurricane, buckle, expert, timber.

C. unpleasant, coin, absolute, struggle, submit, courtesy, surrender, vulgar, museum, suggested.

D. shrub, chum, surface, cucumber, submitted, hustle, murmur, plural, student, custard.

E. superior, rumor, hustle, stubborn, furious, clumsy, humorous, cruelty, muscle, superintendent.

III. Practice with Phonetic Words

Write the following words just the way they sound.

humble, unusual, justify, punishment, clumsy, construct, submit, uncomfortable, customer, publisher.

IV. Test on Phonetic Words

museum, cucumber, custard, superintendent, cruelty, individual, shrub, submitted, mustard, judgment.

LESSON ELEVEN

Primary vowel sounds: "e"

Procedure:

I. Preliminary Test

Write the first vowel you hear in each of the following words.

1. editor, 2. orphan, 3. insult, 4. standard, 5. senator, 6. cistern, 7. shrub, 8. tendency, 9. ambulance, 10. civil, 12. clumsy, 13. established, 14. submitted, 15. reckon, 16. exciting, 17. stubborn, 18. ballot, 19. hustle, 20. entertainment.

II. Practice in Auditory Discrimination

Follow the directions in Lesson Nine, A, substituting the letter "e" for "a".

A. revolution, prominent, preparation, muscle, oxygen, senate, glimpse, demonstrate, establish, reputation.

B. exceed, secretary, cordially, submit, resolution, constantly, satisfactory, tenant, gallery, festival.

C. stupid, empire, disaster, volunteer, enthusiasm, excitement, regularly, moderate, resemble, military.

D. actual, presence, enormous, employed, regulation, determined, sphere, benefit, presume, performance.

E. reckless, territory, dense, dealer, sensible, endure, jewelry, genius, demand, behavior.

E. reckless, territory, dense, dealer, sensible, endure, jewelry, genius, demand, behavior.

F. benefit, beyond, century, cereal, certificate, decay, decorate, energy, estate, feeble.

G. hearth, league, lecture, legal, legislature, leisure, mercy, mental, nervous, permit.

III. Practice with Phonetic Words

Write the following words just the way they sound.
benefit, beyond, cabinet, celebration, certificate, chapel, defect,

IV. Test on Phonetic Words
destination, dignity, editor, elevator, entitle, establish, estimate, explanation, festival, glider.

LESSON TWELVE

Primary vowel sounds: "i"

Procedure:

I. Preliminary Test

Write the first vowel you hear in each of the following words.

1. involve, 2. introduce, 3. corridor, 4. favorable, 5. vote, 6. mirror, 7. indicate, 8. justify, 9. sincere, 10. haste, 11. grasping, 12. dignity, 13. community, 14. signature, 15. unusual, 16. irrigate, 17. discussion, 18. remedy, 19. vigor, 20. wedding.

II. Practice in Auditory Discrimination

Follow the directions in Lesson Nine, A, substituting the letter "i" for "a".

A. impression, literature, talent, employ, vision, mustard, complaint, discussion, dignity, punishment.

B. famine, stupid, timber, illustrate, instrument, residence, moderate, military, impatient, nerve.

C. dispatch, interview, ideal, strode, informal, tenant, insist, similar, rival, wicked.

D. insult, shrink, glider, British, circular, diet, disgust, director, glimpse, finance.

E. wrinkle, icicle, industrial, shipped, pioneer, rival, skipped, sincere, style, thirst.

III. Practice with Phonetic Words

Write the following words just the way they sound.

dignity, justify, literature, punishment, timber, instrument, informal, dispatch, shrink, glider.

IV. Test on Phonetic Words

diet, disgust, glimpse, insist, British, signature, minister, liberty, insult, individual.

LESSON THIRTEEN

Primary vowel sounds: "o"

Procedure:

I. Preliminary Test

Write the first vowel you hear in each of the following words.

1. observe, 2. justify, 3. dispose, 4. profit, 5. mustard, 6. janitor, 7. vision, 8. hostile, 9. torch, 10. acid, 11. victory, 12, convention, 13. ample, 14. introduce, 15. consist, 16. formal, 17. complaint, 18. uncomfortable, 19. discussion, 20. continue.

II. Practice in Auditory Discrimination

Follow the directions in Lesson Nine, A, substituting the letter "o" for "a".

A. congress, acid, contrary, credit, culture, modest, construct, regulation, umpire, conclusion.

B. summon, benefit, consult, scorch, difficult, genuine, horrid, scalp, forbid, actor.

C. contrast, conceal, publish, display, dense, occupation, conversation, consideration, practical, multiply.

D. golf, properly, volunteer, motorcycle, coin, globe, comparison, occasion, probably, worst.

E. lodge, bouquet, confess, dodge, fountain, locomotive, model, congratulate, domestic, co-operate.

III. Practice with Phonetic Words

Write the following words just the way they sound.

compel, prominent, investigate, wilderness, protest, charming, opera, salad, insult, submit.

IV. Test on Phonetic Words

timber, instrument, prosperous, consult, modest, profit, ornament, torch, forbid, confident.

GAMES AND DRILLS TO SUPPLEMENT LESSONS

SPELLO

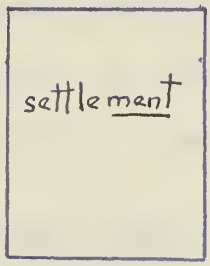
This game is planned for drill on the following phonetic letter combinations: ment, ous, ing, ish, and tion. Similar games may be made using any five phonic units.

Pass to the pupils unlined paper 6" by 9". Instruct them to rule it into rectangles 1" by 2" . Laying the paper lengthwise on the desk, print one of the letter combinations in each of the rectangles at the top. Print "Free" in the rectangle that is the fourth one down and the third one in from the side.

ment	ous	ing	ish	Tion
		Free		

Now tell pupils to open their spelling books to a review list and find five words containing "ment", and print them in the five spaces under "ment" on their papers. Emphasize the fact that each paper should be different, and the words should not be copied in just the same order in which they appear in the book. Continue in the same way with the other combinations until the rectangles are all full. Collect the papers. Before the next lesson the

teacher will check each paper and list all the words used. From this list she will make a set of word cards, 2" by 3", on each of which will be printed one of the words listed. The phonetic combination for which the word was selected should be underlined.



The game is now ready to be played. The papers made previously by the pupils are distributed. One child is chosen leader. He shuffles the pack of word cards and then turns them over, one by one, naming each word and the underlined phonetic combination. Whenever a word is called which appears on his paper a pupil covers that word with a small piece of scrap paper. The first pupil to complete a row vertically, horizontally, or diagonally says, "Spello!" After reading back the row for checking that child becomes leader for the next game.

ment	ous	ing	ish	tion
cement	glorious	sing	wish	nation
torment	jealous	bring	fish	station
argument	famous	free	dish	portion
sentiment	gracious	meeting	swish	friction
agreement	vicious	starting	stylish	diction

LISTENING BEES

The procedure for a Listening Bee is the same as that for a Spelling Bee except that instead of being asked to spell the words, contestants may be called upon to name initial or final consonants, the first vowel, the first two or the last two letters of a word.

VOWEL RACES

The class is told to turn to a review lesson. Each child is given a piece of paper, and told to see how many words he can write in a given length of time containing a particular vowel sound; as "a" as in "at". The one having the longest list may read it to the rest, naming the specified vowel in each word. This game may be used for drill on any desired phonetic combination as well as for vowel sounds. It is a good one to use for listing words where a final "e" changes a preceding vowel from short to long.

SPELLING RELAY RACES

Each row becomes a team. The first child in each row goes to the board, writes a word dictated by the teacher, and immediately covers it until the teacher corrects it. For each correctly spelled word a point is scored for the row-team of which the child is a member. After these words

are corrected the next child in each row takes his place at the board and another word is dictated. The game continues in the same way until each child has had a turn at the board.

BAT

The teacher starts the game by naming any phonetic sound or symbol she wishes. Each child in turn gives a word containing that sound or symbol. The first child who makes an error, or who is unable to think of a word that has not been used before, has his name placed on the board with a "B" after it. The next child then names a different sound and the games continues in the same way. If a child fails a second time an "A" is added after the "B". In the event of a third failure he becomes a "BAT" and must drop out of the game.

A list may be placed on the board if the teacher wishes particular phonetic sounds to be selected for drill.

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